ITEMS OF INTEREST.

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Thots from the Profession.

HUMAN PHYSIOLOGY.

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ABSORPTION.

The food which has become liquefied and somewhat transformed, though apparently inside the body, is still external to the economy. The process by which its actual introduction is accomplished is known as absorption, and involves a double mechanism. Absorption by blood vessels is comparatively a simple process; and an accepted fact, since the experiments of Magendie in 1809. From the digestive tract the vascular system removes ingested liquids, articles of food dissolved by the gastric juice and converted into albuminose, glucose, and a large quantity of secreted fluids.

In addition to the network of arteries, veins, and capillaries, by which the blood circulates throughout the system, there is present also another series of canals, and another circulation of a somewhat different nature. The structure of these canals corresponds very closely to that of the veins, but, unlike the latter vessels, they contain a nearly colorless fluid. From its appearance, this fluid has been named "lymph," and the vessels conveying it, "lymphatics." The origin of the lymphatic vessels is somewhat obscure, but, as far as has been demonstrated by injections, they arise in the substance of tissues, partly in free prolongations, and partly by plexuses. As lymphatic vessels are found just beneath the skin and mucous membranes, and though in less number, but much larger, some are found situated deeply, following the deeper veins in their course, a division of them has been made for

convenience of indication, into superficial and deep lymphatics. The superficial empty their contents into the deep ones. No valvular arrangement exists in the smaller lymphatics, but the larger vessels contain valves in immense numbers. The course of these vessels is direct, and as they pass toward the great trunks by which they communicate with the venous system, they anastomose quite frequently with each other. A marked peculiarity of the lymphatic vessels is that they are all of about one size. In the mucous system the lymphatics are very abundant, and they have also been demonstrated in the voluntary muscles, diaphragm, heart, and coming in immense numbers from the lungs.

The lymphatics of the small intestine, called lacteals, pass from the intestine between the folds of mesentery, and empty by four or five ducts into the receptaculum chyli. The thoracic duct, of which the receptaculum chyli is the commencement, is the tube into which the great majority of the lymphatics empty. It is the size of a goose-quill, and extends upward from the second lumbar vertebra nearly in the median line of the body, and empties at the junction of the left subclavian with the internal jugular vein. There are a pair of valves in the duct about an inch from its termination, which prevents any entrance of blood from the venous circulation. The lacteals and lymphatics have apparently no other direct communication with the blood vessels.

The structure of the lymphatic vessels is, as has been intimated, analogous to that of the blood vessels, viz.: The capillary lymphatics have a single coat, while in the rest three coats can be distinguished. The internal coat is an elastic membrane lined with epithelial cells; while the middle and external coats are composed of white fibrous tissue, elastic fibres, and unstripped muscular fibres. The valves are arranged exactly as in the veins.

The walls of the lymphatics are highly elastic, and it is thought that those of the larger vessels possess also considerable contractility. The outcome of the many discussions as to the existence of orifices in the walls of the lymphatics, indicates the acceptance of the probable existence of stomata in the smaller vessels.

In the course of the lymphatic vessels are found numerous small bodies, enclosed within a tough sheath, composed of nucleated connective tissue and fine elastic fibrils; and whose parenchyma manifests a fibrous tissue, a pulp, and blood vessels. These bodies are named lymphatic glands, but on the lacteals are called mesenteric glands. The number of these glands in the human body is very great, as there are probably six or seven hundred of them.

A lymphatic gland is of a reddish color, and presents a hilum, at which blood vessels enter and emerge. Delicate fasciculi of fibrous tissue divide the substance of the gland into little alveoli. The func-

tion of these bodies is very obscure, but they undoubtedly retard the passage of lymph toward the great trunks; frequently arrest and retain morbid matters taken up by the absorbents; and it is possible that, to some extent, they afford a site for the formation of lymph corpuscles.

Lymph is the material that circulates in the lymphatic system, and this is true of that portion known as the lacteals, except during the period of, and that immediately following, the act of digestion; at which times it becomes modified by the introduction of the fatty matters, which are largely absorbed by the lacteals, and by such other products as water, albuminoids, saccharine material, and inorganic salts that are also taken up in small quantity by them.

The mucous membrane of the small intestine is provided with a special apparatus for the process of absorption. It consists of an innumerable number of prolongations of its substance called villi. Each villus is penetrated from below by blood vessels, which form in it an abundant network of vessels just beneath the epithelial layer. In the deeper portion of the villus is also the commencement of lymphatic vessels—a lacteal. The villi are the active agents in the process of absorption of the products of digestion, and it is estimated that there are about twenty millions of them in the small intestine. The digested fluids taken up from the intestine are first absorbed by the epithelial cells covering the surface of the villi. These cells, during the intervals of digestion, are transparent, homogeneous, and present under the microscope the appearance of very fine granulation, but during digestion and the absorption of fatty matters their substance is crowded with oily matter.

The absorbent system not only collects fluids from the intestinal canal during digestion, but from all portions of the body, and pours these fluids into the venous circulation. Absorption also takes place from the general surface of the skin.

The process of absorption is modified by various circumstances and conditions. After loss of blood, or a deterioration of it from prolonged fasting, absorption is very active. It is also influenced by the rapidity of the venous circulation, by varying conditions of nervous influence, and by the physical conditions of liquids to be absorbed.

The function of absorption involves the passage of that which is absorbed, through the coats of the blood vessels and lymphatics. This process has been made the subject of experimentation, and as a result laws have become established which govern the condition. Any animal membrane which permits a liquid to pass through it, must be capable of taking up a portion of that liquid by imbibition. This property of imbibition, which is common to animal tissues, is modified by the character of the solution to be imbibed, and by temperature, etc. A homogeneous animal membrane, then, capable of imbibing in limited

quantity two liquids which it separates, will do so, and the liquids will meet in its substance and diffuse with each other, and thus establish osmotic currents. The predominating current under such conditions is denominated the endosmotic one, and the weaker the exosmotic. From the foregoing it is easily seen that whenever absorption takes place, with the single exception of the absorption of fats, the following conditions are fulfilled: That the membrane be capable and in a condition to imbibe both liquids; and that the liquids be miscible with each other and differently constituted. The absorption of fatty matters is very obscure, but if we accept the fact, of which there is no doubt, that emulsions are absorbed, it seems more than probable that orifices exist in the vessels, through which the fatty particles pass.

It is an accepted fact that the diffusion of liquids, as they meet in the substance of a membrane, is the actual cause of osmotic currents, and the determination of the endosmotic current is effected by the greater attractive force which the membrane exerts upon one of the liquids.

[TO BE CONTINUED.]

IMPRESSIONS, ARTICULATIONS, &C.,

AS RECOMMENDED BY DRS. REESE AND ATKINSON, NEW YORK.

First and above everything let each preliminary step of your work be thoroughly well taken before proceeding to its completion.

The natural first step is a thorough and intelligent examination of the mouth.

A little extra time spent thus, often saves vexatious failures through hasty conclusions, without sufficient thought or study of the case.

Let every tooth and tissue needing attention receive such as is necessary, and bring the mouth into as good a state of health as the nature of the case permits.

Never extract a tooth or root which it is feasible to save.

Especial attention is called to the preservation of the pillars of the arch (the canines) by every possible means.

When the nature of the case demands it, extract at once all useless teeth and roots.

When the mouth is brought into healthy condition, and not until then, take the impression.

This operation is of the greatest importance, as final success depends principally upon the accuracy of the impression, for, be the subsequent manipulations ever so properly performed, a faulty impression precludes a fit, and the consequence is a failure.

Of the various materials employed for the purpose of taking impressions, plaster may and ought to be used in all cases.

If the mouth, in a case requiring an upper or lower denture, is flat

or shallow, use an impression cup, with a flat bottom and low sides, so that the buccal muscles will not change the position of the cup when inserted, and thus interfere with the correctness of the impression.

On the other hand, when the mouth is deep and depressed under the lips so as to form an under cut, a deep cup should be used after building up the sides of the cup with wax.

This is to cause the plaster to be pressed up close to the gums instead of rolling away from them.

A ridge of wax should be built across the palatine surface of the cup, at the free end, to press up the plaster against the roof of the mouth, particularly at the extreme limit of the proposed line of the plate.

This part of the impression it is *very* important to have absolutely correct.

Full impressions are usually not difficult to take; flattening the rounded palatine portion of the cup will often ease a troublesome case.

This may be conveniently done with a small riveting hammer, care being taken not to distort the shape of the sides of the cup.

Even with this, some of these cases will tax our ingenuity to the utmost.

The most difficult cases are those requiring partial dentures, and especially those in which, say the incisors, lean inward; a molar on one side tips forward, and on the opposite side one of the teeth tips backward.

Although this would seem to be almost a hopeless case, the difficulties may be overcome with perfect satisfaction in the following manner: A wax impression is taken and the model run, wax caps are now fitted over the crowns of the plaster teeth, an impression cup suitable for the case is selected, or one may be made so by building up the sides or the palatine or lingual portions with wax; the caps should be removed from the model and placed upon the natural teeth in the mouth, and the impression taken in the usual manner.

This method will be found advantageous in taking all partial impressions, producing very gratifying results.

Before taking a full plaster impression, it is well to have the patient rinse the mouth with cool water.

Varnish the impression with a thin alcoholic solution of shellac, and when dried place in water until saturated, which may be known by the air bubbles ceasing to rise.

By this method no oil need be used, the impression parting from the model with as much ease as though oiled, and without any of its disadvantages.

The obtaining of the articulation is, with many, a mere piece of guesswork, and the whole operation may have to be gone over.

After the trial plate has been made wax should be softened, and after being pressed on the plate should be put into the mouth, and the imprint of the opposite teeth made as near the natural bite as possible, and then put into a movable articulator, and the model of the teeth obtained by running plaster into the wax, and fastening to the articulator.

A temporary setting of the teeth should now be made on the try plate, any set being used, but plain teeth are preferable; these should be fastened on by wax, and then tried in the mouth.

If the bite has not been correctly taken, a small piece of wax should be placed upon the bicuspids of the temporary setting, on both sides, and the patient required to bite naturally, so as to obtain the imprint of the opposite teeth, when the articulator can be made to move so that the teeth will be received into the imprints in the wax, thus making the articulation perfectly correct, and at the same time the teeth can be so arranged as to bring out a natural expression, after which teeth suitable to the age, sex, temperament, etc., may be selected and intelligently ground to suit the case.

Should any of the natural teeth remain, the requirements of the case in this particular may be met without great difficulty; but even then, their size, shape, and arrangement should be made a careful study.

When a full upper and lower denture is to be made, this difficulty is increased, and it requires much intelligent consideration to prevent the artificial look, which usually accompanies these cases.

If teeth with a short bite be selected, when there is much absorption of the alveolar process, the loss cannot be fully replaced, unless the plate is made very heavy and clumsy. In this case, teeth with long crowns should be chosen, in order that the loss may be made up without the plate being unnecessarily bulky.

When the process is full and the upper lip short, teeth with a short bite, or even plain teeth, can be used with advantage; but all this must be left to the judgment of the intelligent operator.

The selection having been properly made, some material and method should be chosen by which the teeth can be mounted and the set finished without changing the position of the teeth, and at the same time insure a perfect fit.

Most of the materials now in use for this purpose are deficient in meeting these and other requirements.

Either celluloid or rubber, being moulded upon a plaster cast, produce the most perfect fit of all the materials now in general use.

With these materials the occlusion is sometimes changed by the pressure used in bringing the flasks together while moulding.

The chief objection to their use being their non-conductivity of thermal and electric currents.

This is a very serious objection, as it not only keeps the mucous

membrane in a heated or inflamed condition, but also induces absorption of the process and renders the teeth, in partial cases, sensitive and sometimes soft when these materials are in contact with them.

Of the conductors (continuous gum and gold), the objection to their use is the impossibility of obtaining a perfect fit with a swaged plate, and the great heat required in making them causes more or less distortion of the plate.

The expense, skill and trouble which are necessary to their construction, is also a drawback to their universal use.

In gold sets the accumulation of the fluids of the mouth between the teeth and backings, renders the plate unpleasant.

The oxidation of silver makes it objectionable.

Dentists, for the last half century, have felt the want of, and have tried again and again to obtain, a cast metal plate.

The contraction and expansion, during the process of casting of the metals heretofore introduced to the profession, not only rendered the fracture of the teeth liable, but destroyed the fit of the plate.

After nine years of labor and experiment, these difficulties have been overcome; and now an alloy of gold, silver and tin, called gold alloy, in such proportion as to resist the action of the fluids of the mouth, together with a method of casting it so as to overcome expansion or contraction, and which produces a perfectly fitting plate without fail every time, is offered to the dental profession.

The perfection of the fit is such that no air chamber is needed, but when shallow the only admissable chamber, without abrupt or sharp margins, is desired, the tissues are kept healthy under it, and so meets the requirements.

A non-conducting or misfitting plate always keeps the parts in an irritated or spongy condition.

The accurate fit of the plate obtained by the gold alloy allows, in partial pieces, a narrow plate to be made and retained without the aid of air chambers or clasps.

The regular section gum teeth, plain or continuous gum teeth, can be used. The whole method requiring but little more labor than in making a rubber or celluloid set.

A variety of different forms can be made, so that either a plain or a continuous gum set may be secured by the method.

Some idea of the labor expended can be had when it is known that four years were spent in study and experiment before a satisfactory practical case was obtained.

This base has been used in an extensive practice almost exclusively for five years with great satisfaction, and improvements have been constantly made, so that it now may be used successfully by any dentist of ordinary skill.

ITEMS.

BY DR. H. H. WAY, ST. THOMAS, CANADA.

When annealing gold we are apt to overheat it. Only a little too much takes away from it its best working qualities. It must not be held in the flame for an instant, but gently passed through it.

I have always been instructed to obtain a north instead of a south light for the operating room. I have used both, and now much prefer a direct south exposure. To reap the best advantages as well as for comfort, it must be under good control, and admitted through a large bay window or two single ones near together. With proper curtain or awning arrangements there can be no ill effects upon the eyes. I firmly believe that the great majority of dental offices are too dark. We *must* have light. The operator should study his own position at the chair to receive only the reflected rays.

The practice of dentistry in Ontario has been under careful legal restrictions since 1868. Students in dentistry are now required to pass a certain grade in the High School as a *preliminary* examination. Then enter into indentures with a regular practitioner for two and a half years, during which time he attends two full courses of lectures at the School of Dentistry, Toronto, when he comes up for final examination for license. No one is permitted to practice without license, and no license is now granted without examination.

I want to compliment the ITEMS on its bravery in coming forward in the defence of all that is good and true. We wish to see the members of our beloved profession the representatives of the highest type of manhood. We desire no compromise with that which tends to evil. Our moral standing and our reputation for rectitude must be high, to meet the requirements of the refined and cultivated who seek our services. That certain things are repugnant to some of our patrons is sufficient evidence that we ought to refrain from the doing of them.

What is wanted is an increased interest in our professional life; an interest that is superior to the money value of the operations performed. The question stands: Shall we make of ourselves mere bread-winners? or shall we grow in every element of manhood? The very desire to improve and to master all that is within reasonable reach will produce this growth. This will develop into a deep love for our special calling. It is a false idea that we can allow ourselves to drop into idleness between patients, or during rainy days. These are splendid opportunities for study. They who will, can find very profitable work; life is only too short. The writer can himself speak experimentally when he

says that it is that love of ease that tempts away; it lurks so close to our daily path that it is no wonder we prefer to lay by in the heat of the day. But it is a weak point nevertheless. If we spend so much time resting (?) shall we grow in mental caliber and skill? Shall we accomplish much if the body is to govern the mind?

To the young practitioner it is well to start right. He is going to form habits of some kind. Let him now, right here, decide as to his future conduct, and once for all more than resolve to be his own true self—true to his highest convictions, enduring crosses, and meeting obstacles with a will, remembering that, in whatever field of action he would choose, "life is a struggle." Only by well directed effort and constant activity will he come out honorably, and merit "well done, enter thou into thy rest."

CALCAREOUS DEPOSITS.

BY L. C. INGERSOLL, D.D.S., KEOKUK, IOWA.

During the few years past in which I have given some special attention to the presence and formation of calculus on the teeth, in obscure localities, I have become convinced that the profession are quite at fault as regards thoroughness in removing foreign deposits from the teeth of their patients who apply to them for this purpose; and further at fault in not appreciating the importance of the work.

I think that the majority of dentists usually think their operation finished when the salivary calculus has been removed from the exposed surfaces of the teeth, and the mouth presents a clean appearance.

But there is a delicate and far more important operation to be performed in most mouths, beneath the margin of the gum, in removing minute granules of sanguinary calculus which are deposited not from the saliva, but are a product of the decomposition of liquor sanguinis, which oozes from the capillary vessels, following congestion of the peridental membrane and the gum. This destructive inflammatory process is not induced solely by the deposit of salivary calculus upon the crowns of teeth, but may be induced by decomposing animal and vegetable matter that is lodged between the teeth and on the border line of the gums, and by the fetid sordes which collects on the teeth during the continuance of a general febrile condition, or gastric disturbance. The liquor sanguinis, which is the watery portion of the blood, holds in solution the lime salts which enter into the composition of the hard tissues of the body. When this fluid is decomposed, as in the formation of pus in the alveoli, the lime salts are deposited in fine crystalline granules on the roots of the teeth.

The irritation, which is the starting point of this diseased condition of the gum, may be nothing more than an excessive use of the brush

in the daily or thrice daily cleansing of the teeth. Hence, we may find this suppurative condition and the resulting calcareous deposit on the roots of the teeth well cared for, and in the most cleanly mouths.

Not long since a lady whose teeth are exquisitely well kept, the teeth of a pearl whiteness and the gums of a rosy pink color, called my attention to a red spot about the size of a pin's head and located just below the margin of the gum, overlying the root of the left inferior lateral incisor, and another spot even, just below that. To me it was sufficient indication of the presence of sanguinary calculus. On examination I found the gum detached from the tooth, and in passing a very small and thin excavator down behind the reddened spot I found a minute granule of calculus scarcely larger than a pin's point, and still below it another behind the second red spot. On applying the test for the presence of pus, I found it in small quantity. I examined two other teeth and found a similar condition.

If in a mouth so healthy and the teeth so well cleansed I found a deposit of calculus, what must be the condition in mouths only tolerably well kept?—not to mention mouths in a state of evident neglect.

I have no doubt that with a little experience in making the search a careful examination would reveal granules of tartar on the lateral sides of the roots of some teeth in nearly every mouth, and that we should find also, though possibly in a very slight degree, that condition which uniformly precedes the deposit of this form of calculus, namely, ulceration. This is the feeble beginning of a glaring, staring, recession of the gum, overlying one, two, three, or more teeth—a condition which usually passes unnoticed, both by the patient and the dentist, until the frightful recession has taken place.—*Missouri Dental Journal.*

The telescope does not reveal greater creations outside of our globe than does the microscope. The infinitely small is much more than the infinitely great. The difference between planets, between orbs, between worlds, is not so great as the difference in the microscopical world. The animals which roam through the inexplorable African forests, if we should be transported there and should meet them, forms of which we have never heard and which we have never seen, would not astonish us as much as when a man looks for the first time down through the tube of a microscope at the infinitesimal world and the wonderful forms there seen. The infinitely small creation transcends the infinitely great. The microscopical forms of life transcend the macroscopical ones.—*Dr. W. C. Barrett.*

The gluten of wheat may be compared to the lean of meat, while the whiter, starchy portions of the wheat may be compared to the fat of meat.—*American Miller.*

THE STRUGGLE FOR A LIVING.

BY WM. W. GREEN, M.D.

[The following remarks upon competition in the medical profession are equally true in the dental profession. They are taken from the presidential address to the Maine Medical Association by the late Wm. Warren Greene, M.D.—ED.]

Witness the large number of doctors in every city struggling for existence, and see how few out of the whole number really do the work. See how, in almost every country village, a full practice for one or two good men is piece-mealed by sharp and often acrimonious competition, to the detriment of all.

It would seem that in a calling so high, so noble, so sacred, men fit for such ministry should be sought for; but the great question of the young graduate is not "Who wants me?" but "Who will employ me?" not "Who needs me?" but "Where can I get a living?" In the case of four physicians dying, each in a country village, during the past year, I am credibly informed that in one instance two, in another three, in the third five, and in the fourth case seven new men came to look the field over within ten days after the doctor's death—sometimes before the burial. In one case ten attended the funeral, and in another the widow had three letters from aspirants for the vacant place while the dead body of her husband still lay in the house.

It is a hackneyed saying, with which too many ears are tickled, that "there is always room for good men." Applied to the present condition of our profession, it is false. Were only good men and the best men admitted, it would undoubtedly be true. But all over the land, in city and country, are well educated, cultured gentlemen, honest and loyal, striving in vain to secure a competence—yes, a bare living, even—and too often is disappointment mingled with shame and mortification at the success of ignorant and unprincipled rivals. The evil results of this excess in numbers are manifold. It leads to over-practice and bad practice. The man who is hard pushed, who has few patients, and needs more, is tempted to make much of little; to magnify the importance of his cases, both in his own mind and to his patrons; to make uncalled for visits, and to give too much medicine; and unnecessary medication soon ceases to be rational. Patients are injured in mind and body. The community is injured by teaching the people to attach undue importance to trivial diseases, and to over-estimate the value of treatment therein. Legitimate, honest practice suffers in reputation; money is obtained under false pretences.

The best dentist is the one who saves the greater number of teeth in proportion to those coming under his care.

PATHOLOGY.

BY DR. J. M. CLIDE, COVINGTON, KY.

(Substance of a paper read before the Kentucky State Dental Society.)

First, dental caries. Here the origin and cause, whether acids or bacteria, are still a matter of dispute. We believe the acid theory accounts better than the other for the different conditions, whether white, light, brown or black, soft, leathery or hard. But, whatever may be the causes, we know that the remedy consists in a thorough use of the excavator, and the substitution of gold or some other material, and in the application of such constitutional and local remedies as will neutralize the acid conditions or destroy the bacteria, which produce decay.

Next, alveolar ulceration. I believe it is generally held that this begins at the margin of the gums and is caused by calcareous deposits about the necks of the teeth. This may be true, but may not the real cause lie in a too low grade of dental vitality, a grade of life so far inferior to that of the surrounding tissues that nature, ever true to herself, failing to restore the lost vitality, sets this process in operation to divest herself of those organs which have become, to all intents and purposes, irritants? I ask this question merely to provoke discussion, and not from any real investigation I have made, or conviction that such is the true cause. That the deposit on the roots of such teeth differs in some respects from that about the necks is patent to the observation of every dentist. It adheres very firmly to the roots and is granular, that is, it is not deposited evenly on the roots like salivary calculus about the necks, but in nodules scattered more or less thickly, so far as the disease extends. It is also accompanied by an almost constant discharge of a greater or less amount of degenerated pus, very offensive, especially to the operator. Salivary calculus, I believe, generally destroys the entire gum so far as the deposit extends, but alveolar ulceration more especially destroys the bony tissue. I have seen the soft parts left almost intact, the bony walls which support the teeth almost entirely gone. As a natural consequence the gums in such a condition are more or less congested, flabby and tumefied. I have seen all this where there was but little deposit of salivary calculus. Now I wish to ask, is alveolar ulceration the result of the desposit, or is the desposit a result of the ulceration and chemical analysis of the pus found? Does this pathological state have its beginning, progress and end in salivary calculus, or is it a disease *per se?* Can this disease begin around the root of a tooth which is not in itself in a pathological condition? And, lastly, is not this the condition known by the high-sounding and euphonious title, *pyorrhœa alveolaris?*

With intelligent treatment few exposed nerves require to be devitalized.

THE FIRST PERMANENT MOLAR.

BY DR. W. P. HORTON, OF CLEVELAND, OHIO.

Dr. Butler has told us that there is much feeling and discussion in the east, and especially between New York and Boston, as to what disposition should be made of the first permanent molars, each putting forth their particular views, based upon their observations in their respective localities. And this is not confined to the east. There is so much of this subject, and so many have been perplexed by it, that it is attracting public attention among dentists all over the country, even west of the Mississippi. One gentleman, who has figured quite extensively in the dental journals as one of the first apostles of the new departure, says that "after thirty-eight years' experience" his practice is to *extract all* the first permanent molars. He makes no exceptions. Now, the case that Dr. Taft has presented will set the younger members of the profession—and should set all members of the profession—to thinking in relation to this subject; and I hope their thoughts will be in the right direction. Let them study the temperaments and habits of their young patients. Let them, in each particular case, study the texture of the enamel of the teeth in question, whether it will be adequate to withstand the influence of the destructive elements brought in contact with it for any considerable length of time. Let them study the probabilities of there being ultimately room in the growing jaws to receive not only these, but all that shall come after them. We understand that these teeth are erupted at about the sixth year after birth, and that a space of about six years follows before the second permanent molars are erupted; and then follows another space of about six years before the third molars, or wisdom teeth are erupted. Thus it will be seen, on a little reflection, that the subject takes a much wider range than the mere disposition of the first permanent molars, *per se*, involving the contour of the face, the proper articulation, enunciation and mastication. Hence the necessity of making a proper prognosis as to what will be the effect in these directions if this or that line of practice be adopted. Our new-departure friend, west of the Mississippi, says, "after thirty-eight years' practice I extract them all indiscriminately," at once; and that is the *best* disposition to make of them. Now, every young practitioner, and every student who reads the journals, will reason in this way: Here is a man, known to the profession, a reputable practitioner of thirty-eight years, a man who has figured quite extensively in the dental journals and dental societies as an educator, who has come to the conclusion that these teeth must be sacrificed, notwithstanding they may be perfect in their formation, that there may be plenty of room in the jaws for the incoming second (twelve year) molars and the wisdom teeth, and that the operation will

produce permanent disfigurement of the patient. These considerations seem to have no place among the reasons for the fiat he puts forth.

On the other hand, Prof. Taft, after more than thirty years' practice and teaching, in a public way comes before us, and in the most unequivocal way enters his protest against this wholesale slaughter of these teeth, which, in a majority of cases, has been and will be saved as long as the race exists and competent and willing dentists are found to properly treat them. Now let every one carefully consider these more than hints of Dr. Taft upon this subject, and learn the lesson that careful thought and serious reflection may lead us to adopt the best way in the treatment of our patients.

I have myself, in a practice of thirty years, extracted many of these teeth; but then, in each case, there was a good and sufficient reason. Either the texture of the enamel was so weak and imperfect that not even the best efforts of our new-departure friends would save them, or there was such a crowded condition, owing to a want of expansion or growth of the jaw that it became neceesary to remove them, or through neglect of the guardians of the patients, or the patients themselves, decay and abscesses have formed, producing irritation of the nervous system, that it became necessary to remove them. These were exceptional cases, and not the rule, as I think every careful observer will find. And this effort to bring into disrepute one of the important agents given by a wise Creator to solve the problem of properly nourishing the human body, on a mere exception to a rule, is to be deprecated and condemned equally with the efforts of a few who, desiring notoriety, have for the past few years been publishing articles in the various dental journals calling it a new departure in dentistry, which, when sifted of the vast amount of chaff, is found to be merely the exception in dental practice, and has been put forth with the bold effrontery of an entire revolution in dental practice, based on new and wonderful discoveries that some four or five have found out and the rest of the ten or twelve thousand practitioners in this country have been entirely ignorant of until the wonderful luminaries appeared.

The destruction of the first molars is the exception, as I again assert. But when it becomes necessary to remove them, I find the best results from removing them early; as early as from eight to ten years, and before the second—twelve year—molars make their appearance. At that time, in a majority of cases, the second molars move forward bodily, assume the proper position, fill the spaces occupied by the first molars, and make very little change either in the contour of the face or the occlusion of the jaws in after years, and present the best surface for perfect mastication. I am happy in saying that when such cases are presented I give them a very careful consideration before applying the forceps.—*Trans. Ohio Dental Society.*

DISEASE, CAUSE AND TREATMENT OF THE MAXILLARY ANTRUM.

BY DR. C. H. HARROUN, TOLEDO, OHIO.

This subject is of much interest to the general practitioner and of no little interest to the dentist. If we look in our books we will find but little written upon this subject, and by this seeming silence we might easily be led to suspect that these cavities were very seldom the seat of disease. Harris, in his "Principles and Practice of Dental Surgery," says this cavity is subject to some of the most formidable diseases the medical or surgical practitioner is ever called upon to treat, and yet almost every other disease of the body of man has received more attention by writers on pathology and therapeutics than the diseases of the maxillary antrum. Now, with this somewhat startling assertion, let us consider this subject and see if we can say anything that will be worthy of our notice.

The maxillary antrum is often subject to inflammation, which creates little or no concern to the patient or physician; so little inconvenience is felt, that the disease is noticed only as a cold in the head. The mucous membrane is, of course, thickened throughout the nasal cavity. The duct or opening from the antrum into the nose being subject to this inflammatory action, closes up, and thus for a short time escape of the fluid secreted therein is impeded. A fullness, and sometimes dull pain is felt in the locality, with a constant desire to blow the nose for relief. The patient becomes fretful and uneasy. As these symptoms appear, a good old mother usually steps in (very seldom the doctor), the patient is made to drink some one of the many good things, which are always so *proper* and *good*, and sent to bed, with no further notice, except his cold is breaking up, and he gets well.

The above is scarcely worth any notice, except to open the way for something more serious, which presents itself in the shape of acute inflammation of the antral cavity. This diseased condition the dentist is more likely called upon to treat than the general practitioner. As it is caused by some diseased tooth or teeth, the root or roots of which terminate so near the floor of this cavity, an abscess at the apex of the cuspid, first and second bicuspids, first and second molars, often penetrates the floor of the antrum, setting up an inflammatory action of the entire mucous membrane which lines the antrum. The outlet into the nose is closed up; the secretions are, as a consequence, retained, and become very irritating; consequently much pain is felt, often producing great prostration before it escapes into the nose by the natural outlet, or into the oral cavity by removing the affected tooth or teeth, as the case may be.

Treatment necessary for the disease thus set up will be as follows: Extract the tooth, or at least enlarge the opening into the cavity,

through the opening made by one of these teeth, and with a suitable syringe cleanse the cavity with warm water, containing a little salt. This cleansing will be found very soothing to the patient, and bring relief from the very great suffering he or she may have endured for days. Many times this is all the local treatment required. Should systemic treatment be indicated, I would prescribe epsom salts, which will carry off the excess of water from the system; this to be followed by tonics, such as are in common use.

Again we have this cavity diseased, and presented to our notice, after it has by negligence become chronic. A case in practice, a description of which will be all that is necessary to say upon the subject as presented by this form of disease:

About two years ago, I met at the residence of a friend a young lady of medium height and slender build, aged twenty-five. She had been under a physician's care for some time, as a consumptive; but this I did not know at the time. She was not easily induced to join in the general conversation, and kept at some distance from me. She had a peculiarly sad look, as of one who longed for friendship. She soon excused herself from our company. I was somewhat surprised, and asked why she did so; I was told she had such a bad breath no one could tolerate her in their presence. This was a serious objection, and, as we discussed her condition, I became satisfied she had diseased antrum, and not consumption, or even catarrh. I extended an invitation through her friend to call at my office for an examination of the oral cavity. I was very much gratified, a short time after, by her appearance as above desired. Having made a careful examination (after some questions as to her past health and supposed general debility at that time), I found the second and third molars of the left superior maxillary decayed, the crown entirely gone from the third, and the second not in much better condition. I advised their removal, which was readily granted, and the operation of extracting these teeth, together with a large piece of necrosed bone, was at once performed. This opened into the antrum a free passage, which was cleansed by warm water and salt. Treatment for cure was permanganate of potassi as a disinfectant; systemic treatment, quinine and iron. Discharged patient within three weeks, so nearly cured as to not want my personal attention.

Another case of diseased antrum, which proved fatal within six months, will be all that I can say upon this subject at this time, and I hope that this last case may cause more care in filling the roots of teeth after abscess.

In reporting this case of diseased antral cavity, which caused death, my object is to prevent, if possible, another such case.

Mr. J. J. Herrman, a man of usual good health and good habits, of Jewish origin, aged thirty-nine, had alveolar abscess, caused by death

of pulp in second bicuspid of the left superior maxillary. Was attended by family physician, who lanced the abscess, giving temporary relief. Patient called upon the late Dr. Cheesebro, who removed the filling from the tooth, cleansed the nerve canals, and filled the tooth, as follows: Placed cotton in the pulp chamber, leaving the canals unfilled. This condition of the tooth gave rise to further abscess, which penetrated the antrum, and set up an irritation, which was mistaken for cold, or catarrh, from time to time.

Also, several small tumors made their appearance in front of the molar process, each one near the nose. I had warned the patient several times of the probable cause of these tumors. (Note the dead tooth above described.) Some time in May last (1881), patient called and complained of much pain in left antrum, or side of his face, as he described it. I became satisfied he had diseased antrum of a serious character, and advised the removal of said tooth as the exciting cause. This was done, and the probe passed into the antrum with little or no resistance, causing profuse bleeding, which gave temporary relief only. Each dressing given was followed with bleeding and much pain. Face continued to swell, and a tumor directly under the eye enlarged and filled, which was opened, supposing pus would follow, but no pus did, only a small quantity of jelly-like substance being removed. Patient continued to grow more ill, and placed himself in the hands of general surgeons, Dr. T. S. Thorn in charge. A consultation of surgeons pronounced the trouble a malignant tumor of antrum, and advised removal, which operation, after some delay, was undertaken, and condition of parts found to have been delayed too long. Patient continued to fail, and died after about seven months of severe suffering. Draw whatever inference you choose as to cause, I believe the unfilled roots caused the trouble.—*Trans. Ohio Dental Society.*

Another use for Carbolic Acid.—Some people suffer the most intense pain and annoyance from ingrowing toe nails. If the flesh has fully embedded the edges of the nail, and the tissue has become hypertrophied about it, cutting and paring seems but to aggravate the matter. When this is the case drop a very little pure carbolic acid along the borders of the inflamed tissue, and let it soak down beneath the nail. The pain will cease as if by magic, and the irritated flesh will soon make a healthy slough. If now the nail be scraped or filed very thin, in the center only, and from that back to its root, carefully leaving the edges alone, the growth will be directed toward the middle and a complete cure will result.—*Independent Practitioner.*

Let us impress upon our patients, the truth that prevention is better than cure.

MECHANICAL DENTISTRY.

BY DR. T. HOOPER.

[Read before the Kentucky State Dental Society.]

The mechanical dentist must correct irregularities; he must possess the knowledge of the extent to which the arch should be expanded when contracted, when and how to remove teeth when irregular in children, that the arch may develop as nature requires; not to extend the teeth producing a narrow, contracted arch in mature life, similar to that of a child of ten years. Suppose the six year molars be extracted; they occupy the space of half an inch on each side of the mouth; that space will contract, as those men who advocate the extraction of the six year molars will admit. A child having three molars extracted will at the age of twenty years present a mouth in a badly deformed condition, for this reason, from its teeth developed into a wide, round, normal arch; the space of an inch in each arch has been permitted to contract, producing the deformity.

This is what is often done, when the six year molars are extracted before the jaw is fully developed. I must take issue with those who advocate early extraction of the six year molars, for I have seen adult mouths deformed from having the lateral incisors and canines extracted for irregularities, also from the teeth being filed too much; especially when the lower arch is a little prominent, the arch will contract and let the upper fall in behind the lower teeth.

The mechanical dentist must restore nature by replacing the features of the face and the expression lost by the loss of the teeth. He should be able to inform those desiring artificial teeth what restoration could be made for lost features and expression. He should know what teeth to select to correct deformity, and be able to give information what teeth could be treated and filled, and have the courage to refuse to extract teeth that might be saved.

One desirous of becoming a fine mechanical dentist should first learn operative dentistry, familiarizing himself with the normal positions of the teeth, and study to treat and save them. Many learn dentistry backward, by studying mechanical first. It is not surprising, therefore, to hear some clamoring for a divorce of operative and mechanical dentistry. I deem it the lack of ability on the part of all such. That is one reason why young men entering the profession say, after practicing awhile, "I don't like mechanical dentistry, but I do like the operative; I wish I could dispense with the former." Gentlemen, that proves to my mind that mechanical dentistry is the most difficult. It is a self-evident fact, that if mechanical dentistry were placed in its proper sphere, and the public educated to what scientific mechanical dentistry is, we would fail to observe on our thoroughfares the deformed creatures it is now our lot to encounter; and we would, in a measure, rid our noble profession of its frauds.

HELPS IN STUDY.

BY GEORGE WATT, XENIA, OHIO.

[Read before the Mad River Valley Society.]

A rural blacksmith's little boy watched his mother as she was tacking down her carpet, at the close of that joyous season known as house-cleaning week. He saw how nicely each little nail went to its place, under the blows of the small hammer in the hand of the skilful woman. He was a kind boy, and wished to help in the work; but, considering his own smallness, the thought struck him that he would need a much larger hammer than the one used by his mother, in order that his blows might equal hers. He didn't succeed very well, even though he tried his father's sledge hammer; and sometimes professional men have but little better success when they resort to similar devices.

Take an illustration. Is there more than one variety of dental caries? is a question that has been asked, (and answered too, for that matter, but an effort has been made in a certain quarter, to re-open it.) Now do we need microscope, balances, reagents, etc., to settle this question? Certainly not; for the unassisted eye and ordinary observation will answer all purposes. We find one specimen of decay jet black, even when recent. It progresses slowly. It changes the texture of much tooth-tissue that is not displaced or removed. It leaves this changed tissue brittle and friable, with but little sensitiveness in the bottom of the cavity. It is mainly found in the teeth of persons whose breath ordinarily gives off sulphurretted hydrogen. And all these can be recognized without microscope and scales as well as with them. There is no call for them, unless to make a display.

Another specimen of decay is found, which, new or old, is whiter than the texture of the sound tooth. This, usually, is deeper in proportion to its diameter than the black; the bottom of the cavity is much more sensitive; more of the tooth substance is removed or displaced; the decayed portion is plastic rather than friable; very much of the decay can be washed or wiped out of the cavity; it makes rapid progress. And all these points of difference can be recognized as readily without as with instruments, or methods of special research.

Or, suppose the question to be: Are the lime-salts—the hard materials of the tooth—removed by dental caries? The believer in the chemical theory of decay will tell us that the question is indefinite, but that, if this form of it must be retained, he will answer both yes, and no. He will tell us that when he finds a jet black decay, in its early stages, he does not expect to find much, if any diminution of the quantity of lime-salts. What is there to remove them? He does not believe that the reagent concerned is capable of forming soluble compounds with the lime-salts of the tooth. Or at most they can be but slightly soluble. And besides, they are retained in a state of minute division among the

particles of the blackened organic matter, which greatly tends to keep them in place. Even were they readily soluble in saliva or mucus, the carbonized organic matter would almost exclude the solvent, and thus allow them to remain. The intelligent operator would readily recognize their presence by physical signs, while he would also realize the fact that there had been nothing in contact capable of removing them.

Or he will tell us he finds a cavity of decay greatly differing from the black one in several respects. It may be almost colorless, slightly yellow, orange, brown, or even black, according to its age, and perhaps influenced by some other circumstances. It is far more common than the jet black variety, which, however, is by no means uncommon. But its leading trait is that the cavity of decay is always partly, and often almost completely filled with soft tissue, which is not readily washed or wiped out, as is the *debris* in white decay, but is easily cut, even when so little disintegrated that its organic structure is still quite observable.

Now, in this variety, the operator needs no chemical analysis to inform him that very much, indeed, nearly all of the hard matter is removed. And a chemist cannot persuade him to the contrary by the most careful analysis of a specimen of decay, especially if he fails to tell which kind of caries he had under examination, or if he incidentally mentions that it was the black variety. And when excavating a cavity of this gelatinous variety of decay (if the term can be tolerated,) the intelligent dentist knows as well without any analysis, as the best chemist can know with it, that the hard matter of the tooth is mainly dissolved away, as far as the decay has progressed. The chemist can tell more accurately whether or not a trace of lime is left; but the facts necessary to proper practice can be recognized by the one as well as by the other.

It cannot be disguised that, while chemical and microscopic researches are, in their very nature and essence, extremely valuable, there is a degree of pedantry sometimes displayed in their use by parties not competent to use them properly, or to make proper deductions from the results thereby obtained. We can illustrate this by narrating an incident which occurred in an early period of our medical practice: A man as strong and healthy as a wild buffalo, fancied he had contracted pulmonary consumption. He had heard of the stethoscope, and demanded an examination by its use. His physician had none, and borrowed ours, politely asking us to accompany him and witness the examination. The instrument was not so common then as it is now. Our curiosity had become aroused, and we went with him. After dilating on the merits of the instrument, and especially on the accuracy of its revelations, he began the examination. Placing one end of the instrument to the patient's mouth and the other to his own nose, he directed

the patient to breathe through the mouth only, and he smelled the breath as it emerged from the instrument. He pronounced the lungs perfectly sound, and the patient was happy.

This is an extreme case, but it is approximated by some of the so-called researches within our own profession.

Now, it must not be supposed that we lightly estimate chemical analysis and microscopic research when they are legitimate, that is, when they are used for the purpose of gaining useful knowledge, and not merely for display. A man had a severe attack of erysipelas, which had begun on the tip of his nose. He believed that all the trouble had resulted from the bite of a spider, and he became the relentless enemy of spiders. One morning he saw one draw itself up to the ceiling, and at once he seized his trusty rifle and shot it, without mercy. In our boyish way of estimating, we thought the gun quite uncalled for, as a broom or a stick would have served as well; but either would have been less sensational, and much less noisy than the warlike weapon. We are often reminded of this when we see instruments brought to bear in research which can be made quite as well, if not better, without them. When the microscope and the balances are brought into requisition to know if any considerable proportion of the lime-salts is removed from a carious cavity by that form of decay which is characterized by the presence of large quantities of gelatinous materials in the cavity, we are shooting spiders with a rifle, if not smelling breaths through a stethoscope.

An amusing feature, too, in some of these so-called instrumental researches, is found in the fact that, in a few years, or even after a few months, in some cases the observers assume that, of all "our glorious profession," they, and they only, are experimenters—that only they are making progress. They tell aged men their experience in the most patronizing way; and in some cases find, afterward, that their reports of their experiments read so much like the aged brethren's accounts of ones tried before they were born into the profession, that they are in danger of being charged with plagiarism. Sometimes a compound word is coined for the occasion by the youthful experimenter to express his own opinion that the more aged member can merely talk about the researches of others, but has made none himself, while the truth is, in some cases, that he has tried more experiments that the younger brother has ever heard of. But all this is in perfect accord with human nature, and we can see the principle illustrated almost daily. Not long ago we heard a student who had spent less than six months in a dentist's laboratory talking with a mechanical dentist of long experience, advising him to come and learn from him, saying: "If you only understood dentistry as well as I, you could double your wages at once." But even this consideration failed to induce the old man to

take a course of instruction from the would-be young teacher. And this is human nature, too, for we old men often neglect, or even reject opportunities for improvement.

The microscopic and chemical analysis have each an important office to fill in dental science; and it is not likely either will be too highly esteemed. All we ask is that they be legitimately used by competent parties. If dental caries results, to any extent, from the action of acids, it is very important to know what acids. And here the microscope comes in as an important help. If an acid combines with tooth-substance, a salt, or salts must result; and the quantity obtainable for examination in any given case must be small. Much can be learned by watching, with suitable power, the crystallization and re-crystallization of the salts thus formed. By evaporating the liquid slowly, and rapidly, by using different powers, and sometimes by polarization of the results, much information can be gained. We have found such observations so fascinating that very often we have chased night into morning, day after day, for many weeks in succession, while making them.

The experimenter often fails to get the best possible aid from his microscope by using too high powers. In the popular mind this instrument is valuable, or otherwise, in proportion to its magnifying powers, while the distinctness of its definings are left out of consideration, or regarded as of minor importance. How often, when a microscope is under consideration, the first question is, how much does it magnify? And even some who regard themselves as experts, fail to give the most reliable information, from having relied almost exclusively on high powers. When we bear in mind that, others things being equal, the liability to mistake in observation varies in the ratio of the squares of the powers used, we can see the importance of receiving such information with a few grains of allowance. High power observations are very important as well as instructive. But what we are asking for is reasonable caution in the statements of results, repeated observations, also before positive assertions are made respecting them, and due caution, as well, in the reception of the information thus obtained. To steer straight forward, avoiding blind credulity on the one hand, and cold suspicion on the other, should be the aim of every progressive mind in our profession. Truth, simple, pure and bright, is found only in this way. May you all attain to it, and enjoy the bliss which can not be otherwise possessed.

That Book on Oratory.—Our notice of this book has caused so many to write to know the price, etc., that we will here be a little more explicit, and say it is $1.50, to be had of the author, Rev. Wm. Pittenger, Bordentown, N. J. Anyone desirous of knowing how to become an orator can not do better than to send for it.

REPORT OF THE MEETING OF THE PENNA. STATE DENTAL SOCIETY.

[Held at Cresson, Pa., July 31 and Aug. 1 and 2, 1883.]

BY DR. W. H. TRUEMAN, PHILA.

THE FIRST DAY, JULY 31—MORNING SESSION.

The meeting was called to order by the President, Dr. J. C. Green, of West Chester, at 11 o'clock.

The Rev. Mr. Russell, of Altoona, delivered an address of welcome, which was responded to by Dr. Gerhart, of Lewisburg. The rest of the morning session was devoted to routine business.

AFTERNOON SESSION.

The president delivered his address, taking as his theme, "The manner in which advances in science are made." He endeavored to show how much valuable time and earnest effort is constantly wasted by being improperly directed. Would-be investigators neglect to ascertain how far the subject they are interested in has been studied; or, attempt to unravel the deeper mysteries of a science before they have mastered its first principles; or, attempt a little here, and a little there, without any method or fixed object in view. In each case the result is a waste of time and effort. We should consider not only what we already know, but, also, what we desire to know, so that each effort shall be directed to a definite object.

It has been well said, "He who sees most and comprehends what he sees, makes the best use of his time." It is not sufficient to simply *acquire* knowledge, or by constant practice acquire skill, but what we need most is the power to make that knowledge and skill practical. A man may be ready with his knowledge, be ready to describe and explain the various diseases and their best mode of treatment, and yet not recognize symptoms when he sees them, and be entirely at a loss in selecting a remedy. He may be a good mechanic, and yet, failing to exercise judgment, be a poor workman. We should study to see not only that which lies upon the surface, but also that which is hidden deep within, and constantly bear in mind that all knowledge, to be useful, must be practical.

The doctor closed his address in an earnest plea for scientific, persistent, methodic work, in unraveling the mystery surrounding the cause of dental caries as a ground-work to a better understanding of their prevention and relief.

Dr. James Truman read a paper upon "Iodoform in Dentistry." He had noticed in the foreign journals frequent reference to the use of this substance in dentistry, especially in Germany. Seeing it highly recommended by men whom he personally knew to be competent and reliable, he was induced to give it a careful and guarded trial. It

seemed to be but little known in this country, and, believing that it possessed merit, he had taken this opportunity of calling attention to it. So far the results had been very satisfactory, but he had not been using it long enough to feel able to estimate its real value.

Iodoform is an orange-colored, fine, crystalline powder, with a strong, persistent, saffron odor. To many the odor is quite unpleasant; so much so that it has been cited as an objection to its use, and is said, in some cases, to cause severe headache. He had used it carefully, and had had very little complaint of it on that ground. It is desirable to keep it off the hands, the odor being more difficult to remove than that of creasote.

It has three properties that render it desirable to us as dentists: It is antiseptic, and allays pain; its power to give prompt and permanent relief is remarkable; it is a disinfectant, and seems to possess the power of uniting with the gases given off during decomposition, and rendering them inert. It possesses these properties to a far greater degree than anything he was acquainted with. A knowledge of these properties will suggest the cases where it can be used to the best advantage. It seems to combine the action of chloroform and iodine; but is far more permanent in its effect than either. For convenience of application he mixed it with a 10 per cent solution of carbolic acid, using about the one-twentieth of a grain of iodoform. It is very important to thoroughly seal it up, so that it cannot possibly mingle with the saliva; he thought it quite as important to do this in using iodoform as in using arsenic, for it must not be forgotten that this substance is a poison, minute doses sometimes producing headache, nausea, and other unpleasant symptoms.

In illustrating its practical use, he stated if a case presented with severe toothache, with an exposed or nearly exposed pulp, he would proceed much in the same way as though he intended to make an arsenical application, only using more care in excavating. Then he would take about the one-twentieth of a grain of iodoform, moisten it with creasote solution, and carry it to the previously well dried cavity on a small plugget of cotton,—just as he would the arsenic paste—and carefully seal with cotton and sandarach varnish, using the same care to avoid pressure and to perfectly seal the cavity, as he would in using arsenic. Usually the pain ceased in a few moments, and did not return. He would leave that application undisturbed for a week or ten days, if the tooth remained comfortable. On the patient's return, after adjusting the rubber dam and preparing the cavity, he would place an application of iodoform over the point of exposure, and, leaving it there, proceed to cap the pulp by any of the usual methods. What the final condition of that pulp would be he could not tell. He could only say that with but few exceptions they have remained comfortable,

and nearly all the cases have been those where, in his judgment, any attempt to save the pulp by the usual methods would have failed.

He had also found it useful in cases where the pulp was found dead and putrescent. In these cases, after cleaning the cavity and opening well into the roots, he would pass a little cotton saturated with the iodoform and creasote down the canal, and seal it up. It seldom required a second application.

In conclusion, he enjoined extreme care in its use, quite as much as we now recognize is required in using arsenic. He believed that, used with judgment, it would prove a valuable acquisition.

DISCUSSION.

Dr. C. N. Pierce had found iodoform of value in treating putrescent pulps, and also in cases of pulp irritation. Could a tooth with an exposed pulp be filled over it with safety to the pulp? That was an important question his experience had failed to answer.

Dr. E. T. Darby thought that, from some cause, they were more successful in treating these cases in Germany than we are here. He recently read an article in a German journal, in which the writer claimed to have had only six failures in treating one hundred cases of nerve exposure. That was a far larger percentage of success than usually met with here. He had treated a few cases of irritated pulps by sprinkling a little iodoform powder over the point of exposure, covering it with paper and then sealing it up with gum-damar and wax. The pain almost immediately ceased, and ten days after he renewed the application, this time using a solution of it in glycerine and carbolic acid, and filled temporarily. They had remained perfectly easy, but of the final result he could not say.

Dr. James Truman said that, in cases of recession of the gum, and consequent irritation of the periosteum, he had found almost immediate relief on application of iodoform in solution.

Several gentlemen stated they had used it with good results, but all were in doubt as to the ultimate effect upon the pulp; whether it really restored it to a healthy condition, or whether the immunity from pain was owing to its powerful antiseptic and disinfectant properties, acting as the chloride of zinc in the oxychloride cement sometimes does, when the pulp becomes "mummified."

All had found it a quick and lasting pain obtunder. Dr. Guilford related a case where it had been applied after a severe surgical operation for the relief of hemorrhoids, by sprinkling the powder over the wounded surface. It eased the pain quickly, and the patient rode to his home, several miles distant, over a rough country road, with comfort. Several cases were related where the application had been followed by severe headache and nausea, supposed to have been caused by not thoroughly scaling the cavity.

EVENING SESSION.

Dr. William H. Trueman read a paper entitled "The Screw in Regulating."

He referred to a paper by Dr. J. N. Farrar, published in the *Dental Cosmos* for January, 1878, in which the writer called attention to the advantage of a positive and intermittent force in regulating, as having impressed him with the value of the screw for that purpose. Since then he has used it frequently, and always with satisfaction, finding it to work rapidly and with but little pain or inconvenience to the patient. He had not adopted Dr. Farrar's idea of turning the screw only a certain distance each day, but pushed it as rapidly as in his judgment the case would permit. He found difficulty at first in holding the screw in place firm enough to resist the force necessary to turn it. He had adopted the plan of fitting gold bands to the tooth to be moved, and the tooth or teeth selected to sustain the other end of the screw, soldering to each catches to prevent them pressing into the gum. To these bands he soldered tongues of heavy silver plate, not made to conform to the mouth, but straight. He used the steel screw-jacks found at the dental depots, soldering the nuts to the tongues with soft solder. In constructing the arrangement, after the bands were finished, he placed them in position on the cast, and, laying the screw in place, soldered it to the tongues while on the cast. No part of the steel should touch any of the teeth; if it does, he found the enamel roughened at the point of contact. To guard against it he covered any part likely to touch with tin, or soft solder. In fitting the bands to front teeth in crowded mouths, he put them at the necks, close to the gum, not slipping them over the crowns, but pushing them through from the inside of the mouth. He always found space enough for this purpose at this point. When he desired to pull a tooth in, instead of bands he made rings or loops. He exhibited an upper cast, with both canines presenting immediately behind the laterals. In this case the teeth were so short that in order to get the bands to hold firmly he fitted them to the teeth in the mouth, running them well under the gums. Then he took an impression with plaster, while the bands were on the teeth; this is not often necessary. The screw was placed upon the two teeth, working upon both at once. In two weeks they were in place, without having been at all sore or causing the patient any great inconvenience.

In another case, the lower incisors antagonized outside of the upper teeth. A screw with a loop at each end had brought them into position.

Another, where the lateral was very much inside the arch, had been corrected in a few days.

He thought the intermittent force, allowing the teeth some hours rest, and also the positive and unyielding force of a screw, holding the tooth firm and preventing the to and fro motion so apt to occur when

a spring is used, decided advantages. So firmly does the screw hold the tooth, there is no need to cap the back teeth in any case. He thought that Dr. Farrar's attempt to adapt the screw to all cases, and the many apparently complicated appliances he had suggested, had done much to lead attention from the value of his first few articles upon it. He desired to show that the screw appliances can be made very simple, and that they were especially useful in cases where almost any other method would be very difficult.

[TO BE CONTINUED.]

CAREFULNESS IN STATEMENTS.

BY W. E. DRISCOLL, BEDFORD, INDIANA.

ED ITEMS:—Gen. W. Q. G. made several unsuccessful races for a seat in Congress from this part of Indiana, yet he came out of each defeat with a greatly advanced reputation. The following was, probably, the reason:

Almost every audience he addressed was composed, by a large majority, of strong opponents to his political views. He saw it was folly to indulge in many of the extravagant assertions that were common with speakers who were accustomed to meeting crowds who were in sympathy with and ready to cheer the wildest assertion as the most palpable fact. Hence, he confined himself to questions that, if not unanswerable, were nearly so. This, done with dignity and candor, commanded respectful attention; a great point gained. After a few defeats he ranked with the most distinguished men of the State, and has since enjoyed phenomenal popularity and substantial recognition.

Cannot dental writers profit by such an example? In the enthusiasm sometimes felt in presenting a favorite theory, are not our figures of illustration so much overdrawn that the unsympathizing reader is prejudiced, where, if a more temperate statement had been made, conviction, or at least better attention, would have been secured?

I am led to these reflections by an article in the ITEMS for September, that in the main is excellent. Yet, any practitioner will at once see what may be called the climax of his theory, will not bear the stubborn test of practice. Hence, the effect is weakened, and unnecessarily. Had the writer taken time to cool down, and then taken up his production, not as a fond parent, but as a disinterested critic, he would have been more likely to distinguish between the practicable and the impracticable. We all write, at times, something in a form we would not suffer to go out as our deliberate utterance for any consideration; and, upon a second draft of our more matured thoughts, the contrast shows how very differently we may feel upon a subject at different times. Will not our theories stand a much better chance of having justice done

them if we reason as if the audience were already prejudiced against our ideas, and must not be allowed to see any defect in our position by unwarily claiming something not necessary to an invulnerable stand upon what is really practicable and the truth?

INORGANIC SUBSTANCES AS FOOD.

BY C. R. TAYLOR, STREATOR, ILL.

EDITOR ITEMS:—J. F. Sanborn, in the September number of the ITEMS OF INTEREST, in reply to Dr. Ottofy's card, says that, "All inorganic matter, as sodium chloride, (salt) phosphate of lime, carbonate of lime or iron, in order to contribute to the life force of the animal kingdom, must do so by obtaining this vitality by passing through the vegetable kingdom." Such an assertion needs more proof than any man's *dictum*. The fact is that the inorganic substances found in the animal economy have the form and properties that they have when found outside of organized bodies, and as such are as essential to the support of life as the organic substances. Nearly all, if not all, of the inorganic substances, such as water, chloride of sodium, iron, etc., can be supplied to the animal economy without having passed through vegetable life, though the processes of vegetable life usually prepare those inorganic substances in such proportions as to be the most acceptable to animal life, yet never adding to them any property they do not possess outside of vegetable life. The carnivorous animals get all the chloride of sodium (salt) they require from their animal food. Most of the herbivorous, upon which the carnivorous live, have an instinctive desire for salt, which they express by traveling for miles to reach saline springs and "salt licks;" and in domesticated animals it has been demonstrated time and again, that they thrive better when they are liberally supplied with salt. In anæmia and chlorisis the food prescribed by physicians is some preparation of iron, with beneficial results.

He further says: "In the use of any of the inorganic compounds they are as dead matter, and cannot, in the least, administer life force." How ridiculous! Can he mention any organic food that will sustain life as long as water will? He also says: "Anything that is proper for food can be used for a full meal without impairing health;" which needs demonstrating.

Salt, oil, starch and sugar are proper articles of food. Yet none of them are proper articles of food for a full meal. The proper food for a full meal should contain all the elements, and in due proportions that animal life requires under climatic circumstances.

Tartar is of more injury to teeth than is generally supposed.

MEDICAL AND DENTAL ORTHOEPY.

BY L. P. MEREDITH, M.D., D.D.S.

[Extracts of address read before Kansas Association, May, 1883.]

The most common errors that occur with us in private conversation and public addresses, are those connected with the pronunciation of words.

With the French a certain combination of letters always has the same sound, and imported words are at once gallicized or made to conform to the rules of French pronunciation.

It seems odd to the student first attacking the tongue of Monsieur Crapaud, to hear that "qui," "dent," "drap," and "hors du combat" are so spoken, and not wee, dentt, drapp, and horse doo combatt, but he soon finds that the same letters, whether standing alone or used in combinations, have always the same sound, and his progress in French orthoepy is comparatively easy.

The sounds of many of the German syllables are harsh and unnatural to the stranger, but he soon learns that they are always the same, whether isolated or used in constituting a larger word.

The exceptions are rare, but in our language the exceptions almost defy rules. We cannot tell whether ei is eye, or ee or a; whether ough is off, or ow, or uff or ock; whether ch is as in chair or in chord; whether hundreds of other pronunciations are right or wrong unless we refer to reliable authority.

There is no profession whose words peculiar to it are so murderously mutilated as that of medicine. It is a rare thing to find a practicing physician, not accustomed to public lecturing, who does not pronounce improperly fully one-half of the scientific words he uses, and many scarcely pronounce correctly one word in a dozen. Even among the most eminent of the occupants of chairs in the medical colleges, errors in pronunciation are so common as to occasion frequent remarks on the part of educated students, often furnishing material for jests for the term, saying nothing of the lack of respect produced, and which only the gauntlet of examination prevents from manifesting itself.

Separate reference to the profession of dentistry in this respect is almost unnecessary. Being a branch of medicine, its words are, with a few exceptions, the same and liable to the same distortions.

To speak of all the words liable to mispronunciation by physicians at all times, and common to both dentists and doctors in their similar courses of study, would require a volume; even to mention all of the errors connected with the medical words usually employed by the dental profession, would consume more time than we are privileged to devote to the subject at present.

The pointing out of a few of the more conspicuous will suffice for the

purpose of establishing the truth of my assertions, and, possibly, of causing an effort on our parts to remove another of the reproaches against our profession.

Alveo'lus, says one, when it should be alve'olus; alveo'lar, says another, when it ought to be alve'olar. It should be proc'ess, not pro'cess; abdo'men, not ab'domen; ad'ipose, not ad'ipoze; a'lis, not al'is in such words as digita'lis, abdomina'lis, fronta'lis, lachryma'lis, etc. A'qua, not aq'ua; a'ris, not ar'is in terminations, as Palma'ris, orbicula'ris. Asbestos should be ass-bess'tos, not az-bez'toze; az'ygos, not azy'gos; cada'ver, not cadav'er; caris is ca'ri-eze, not ca'reze nor car'reze; caryophil'lus, not caryoph'illus. Iodine is i'odin, not i'o-dēēn, nor i'o-dīne; chlorine, bromine, flourine, have each the sound of "in," in the termination; ide, as a termination in such words as iodide, bromide, chloride, sulphide, etc., is īd, not īde; it is i'tis, not e'tis, in terminations as periodonti'tis, laryngi'tis, cerebri'tis; albu'men, not al'bumen; cit'rate, not ci'trate.

Thomas' Medical Dictionary is our best guide in the orthoepy of the medical and dental professions. The words are printed in full-face type that catch the eye at once, the syllabication is plain, the proper ones are accented and the orthoepical marks are plain and certain, similar to those in Webster's Dictionary.

Dunglison, though much more comprehensive in definition, (needlessly so, considering the information contained in the other text books) is almost worthless as a reference in regard to pronunciation. The most important accent is marked in many cases, but the vowel sounds are uncertain and one cannot ascertain them in the pronunciation of preceding and succeeding syllables; besides, there is no attempt at syllabification.

Webster and Worcester may be appealed to with perfect confidence concerning all the medical words that they contain, and nearly all of those in common use are found on their pages. With Webster, Worcester and Thomas as our pillars of support we may defy the criticism of the world; unsustained by them we fall before the first adverse breath.

In perfecting ourselves in this branch of our education I can think of no better method than this: Whenever we hear a word in private conversation, in addresses or in lectures, about the pronunciation of which we are not positive, let us take a note of that word.

When in reading we encounter a word about which we are not absolutely certain, let us take a note of that also. Then, at the first leisure opportunity, let us consult a reliable authority; this will make an impression not readily effaced like information concerning words that are not thus fixed in our minds.

Let us remember, in our efforts to correct ourselves, that we will be imitated as we have imitated others; where we have been led into error

let us lead others aright. If we have been given gum ara'bic or gum arab'ic, let us give others the true gum ar'abic, and give it to them so that it will stick.

TOOTHACHE.

Dr. Guillott claims to have had very good results in the treatment of toothache from the injection of chloroform beneath the mucous membrane of the gum. The effects are more immediate and lasting than those of morphine. There have been no resultant abscesses or imflammation.—*Progres Medical.*

This is a fair specimen of the paragraphs regarding the mouth and teeth which one often finds in foreign medical journals. Supposed-to-be-learned-Professors, with half the alphabet strung to their names like the knotted tail of a kite, will, with owl-like gravity, lofty condescension, and the most priggish air conceivable, inform an anxiously listening world that *aqua camphoræ* is excellent for toothache. It would be quite as definite to say that *sulphate of quinia* is good for illness.

To the dentist the term "toothache" is devoid of anything but a general meaning. There are so many kinds of toothache, and the pains in teeth arise from so many causes, some of which are not at all connected with these organs, that it would seem as if learned writers should not exhibit their ignorance in the manner in which many of them do. Chloroform injected beneath the gum may temporarily relieve an irritable nerve filament without subsequent abscess, but how would it affect a violent case of periosteal inflammation? Tincture of aconite would possibly relieve an inflamed tooth pulp, but of what benefit would it be in a case of exostosis? Toothache, like other pains, is but the symptom of a diseased condition, and all the nostrums sold by quack medicine venders, or prescribed by physicians who know nothing of the pathology of the case in hand, cannot work a cure. There are few intelligent dentists who will not cite numerous instances in which a suffering patient has been under the care of a physician, for weeks perhaps, until in despair he was turned over to the dentist, who wrought a cure in a moment. We have known people who were frightened out of their wits because some physician had treated an impacted tooth as an osseous tumor. We were once summoned to attend an operation for necrosis, but which a very slight examination enabled us to diagnose as alveolar abscess, with induration. There are no tissues or organs of the body which physicians study so little as the teeth and their relations, and yet, plentiful as are competent dentists, there are too many who are continually recommending worthless nostrums, rather than to turn them over to the qualified specialists. —*Editorial in Independent Practitioner.*

ITEMS.

[From Hearth and Home.]

Some one has suggested that a law be passed punishing dentists for extracting teeth that should be saved. It would destroy the calling of about one-half of those calling themselves dentists.

The accumulation of tartar on the teeth does great injury, especially where it gathers in any quantity, by its constant irritation of the gums, causing them to become soft and spongy, and to recede from the necks of the teeth, until it frequently happens that the teeth get loose from no other cause, and finally come out entirely. The teeth should be kept free from tartar. Usually it can only be removed with an instrument, as it adheres very firmly.

Calomel and tincture of iron in careless hands have done incalculable harm to human teeth and mouths. They should be used with the greatest caution, only in extreme cases, if at all, and full instructions be given the patient how to take them, so as to avoid the too frequently injurious results that follow their use. The latter should never come in contact with the teeth in taking, and the former should not be given in doses to produce salivation. Thousands are toothless to-day through the careless or ignorant use of these powerful drugs.

The too general practice of killing the nerve of an aching tooth is little less than criminal. Usually, if the nerve or pulp is alive, the vitality of the tooth can be preserved, the aching cured and the tooth saved. Where this is *impossible*, as a last resort the nerve may be destroyed and removed, and the nerve canal and the cavity filled, and the tooth may do good service many years. It may, however, never cease to give trouble, occasionally or continuously, by forming what is known as "gum boils" at the end of the root, causing great annoyance at times. It is the "dead nerve" or some other dead thing that is causing the trouble.

The preservation of the first or baby teeth until the time arrives when nature displaces them by those of the second set, is a matter of far more importance than is generally supposed. Even physicians usually advise the extraction of these teeth whenever decay causes any pain to the child. The serious results that follow too early loss of the temporary teeth are irregularity and crowding of the second set, more particularly those in the front part of the mouth, because, being less deeply imbedded in the jaw and coming in first, they are crowded forward or out of place more easily than the molars. Preserve the children's teeth carefully, and, if anything, give them more attention than

you do your own and they will live to bless you. If these first teeth decay they should be filled with any filling that will preserve them to the time they will be displaced by the second teeth.

Artificial teeth are the only substitutes for the loss of the natural organs. They should always be well made, perfectly fitted, and in color, size, shape, and so far as possible in arrangement, should duplicate the natural teeth, unless the natural teeth were unsightly and defective. In that case the skillful dentist will improve on nature's work by producing, as nearly as good judgment and taste can do it, teeth that look as the perfect natural teeth should look. It is painful to see the monuments of the unskillfulness of so many dentists (?) that thousands of people are carrying around in their mouths. Many look as though the dentist had unconsciously turned his wonderful genius to setting in white and ghastly prominence a single or double row of shining headstones, each to commemorate the memory of the departed tooth whose place it is supposed to occupy. But usually such ghastly spectacles of a lack of skill and taste are only "$8.00 up," and the few dollars thus saved condones for all the unsightliness of the face caused by such work. How cheaply some people value their personal appearance when it comes to artificial teeth. The very best that can be made are but poor substitutes for the natural teeth. It is a remarkable fact that you cannot get a good first class article for a third or fourth class price. This remark applies to artificial teeth as well as to boots and shoes, or watches and other merchandise.

The preservation of the teeth by filling, is the most important feature of dental practice, but unfortunately it is not so considered by the majority of mankind. The continued practice of a majority of dentists and physicians has been, from time immemorial, to extract all offending teeth, and always advise it to be done instead of throwing the educational force of their professional influence on the side of saving these invaluable organs. This has caused a very low estimate to be placed on the value of a tooth, many being unwilling to spend anything to preserve a tooth that could and should be saved, arguing that it is better to have it extracted, and finally resort to artificial teeth "that will not ache." If teeth ache, it is one's own fault. It is but the penalty of neglect. Nature seldom makes mistakes, and it is not a mistake that man is provided with thirty-two teeth to prepare his food for the nourishment of his body. Thirty-two is none too many. If it were, fewer would have been provided. It is as much man's duty—your duty—to preserve those organs as it is to save your finger or hand if attacked by disease. Give a little serious thought to this matter and see what conclusion you reach.

EMPIRICISM.

BY J. TAFT.

[Read before the Mad River Dental Society, May 22, 1883.]

* * * * The following four agencies have been the chief factors in the development, growth and establishment in its present position, at least, of the art, science and profession of dentistry, viz.: 1. *Associative effort;* 2. *A literature, both standard and journalistic;* 3. *Collegiate education;* 4. *Legal enactments.*

It would seem that the bare mention of these instrumentalities would be sufficient to bring clearly to the minds of all the influence that each has had, in the upbuilding of our profession. When the combined influences of these agencies exist, it is impossible that empiricism can flourish. As men become educated they become less inclined towards engaging in the doubtful practices of the quack.

Our literature is a potent agency in education, not only for the student, but for the practitioner as well, and how important is it, that the text-books put into the hands of students, be such as will give them correct ideas, and a just apprehension of that which they are to learn. Very rarely, if at all, will he who has attained a thorough knowledge of anatomy, physiology and chemistry, become an empiric in any department of medical practice. How all-important, then, that the foundation of the professional attainments of the dentist be laid deep and broad. That there should be better arranged text-books for the preparatory work of the student, I think no one will deny.

Our periodical literature, which is designed more especially for the practitioner, should have for its aim, not only the communication of facts, modes, operations, and news, but it should also, in a large measure, present and discuss the principles upon which the practice of the profession is based; and this should be done in such a manner as to elicit attention and secure the earnest interest of those who read. The persistent student never becomes a quack. In view of the capabilities of our periodical literature, and the magnitude and importance of the work it may accomplish, how very desirable it is that those engaged in this department should work harmoniously—co-operate in all ways possible for the accomplishment of the greatest good. Engagement in a common cause should induce a common sympathy and a co-operation of effort. Every journal should be a light bearer, a disseminator of knowledge—self-conceit, or vaunted superiority, is certainly not an essential part of true journalism.

How to increase the number of readers of our journals is a problem worthy of special consideration. A very small proportion of the profession are careful readers of our dental periodicals,—probably not more than one in ten. Without doubt, a much larger number scan the journals for items of a practical sort, but never think of studying the

matters of deeper import, which require thought and patience for their comprehension and appropriation. Another class of persons, and probably comprising a greater number than either referred to, are those who usually confine their reading to the advertising pages. The latter two classes, and especially the last one, usually receive their journals as a gratuity. No dentist who has subscribed and paid for from two to four good dental journals, and carefully read them, can be a quack.

The education of those who propose to enter the ranks of the profession is fraught with more importance than is usually attached to it. There are two ways in which this is accomplished, viz.: in the office, and in the college. It is ordinarily accounted a light matter to have in charge a dental student. Many young men make it a point soon, sometimes immediately after opening an office, to take a student, imagining that thereby their own importance and prestige will be promoted; while the truth is, that the ability to teach others is usually the least of their attainments. Many students are injured, if not permanently spoiled, by such puerile instruction.

But the young practitioners by no means do all the mischief in this direction. Men who have been many years in practice, in many instances, are totally unfit to train students. They have not the natural endowments, nor the acquired ability, nor the industry, and perhaps, neither the time nor strength.

Now all this may exist and result in only a negative injury. But in too many instances a positive mischief is done, either by the impartation of false notions as to what constitutes true professional character, or by erroneous teachings of principles and practices. There will not be found more than one in a hundred, who has been in practice more than two years, who can or will properly instruct a dental student.

It is often that those who enter the dental college, after having office pupilage, are the most difficult to set right, and the most unpromising throughout the course of instruction.

Persons possessing no material aptitude for dental practice, are too often encouraged to enter upon a course of preparation for it; and the outcome in such cases generally is, either a total failure, or an awkward, bungling mode of practice, or downright empiricism, the latter oftener than otherwise.

The regular, well-ordered and systematic course of instruction in a dental college, renders it most impossible that the recipient should be a quack.

It is the province of the college to impart to those seeking its advantages, a thorough knowledge of its principles and practice,—its science and art; and he who is well grounded in these, will not descend to the ways of the charlatan. The half, or poorly educated, are the more likely to enter upon "ways that are dark and tricks that are vain."

It must be borne in mind, however, that it is not always in the power of any college faculty to convert a rogue into an honest man. But it is, nevertheless, the duty of those who are preparing actors for important work and great responsibilities, to look to all the existing qualities, moral as well as intellectual, that may in anywise impair efficiency and success, and correct defects and perversities as far as possible. Good example will do much in this respect, but, "precept upon precept, and line upon line," should not be omitted when need be.

In the reception of students by our colleges, it would be well if a proper system of discrimination could be adopted, by which the manifestly unfit and incapable would be prevented from entering. The evils resulting from want of a proper discrimination in this respect have been too often manifest.

Notwithstanding the disabilities under which our colleges have labored, they have stood as a great barrier to and a prevention of empiricism. It is doubtful if any other single agency has done more,—certainly none has laid deeper and broader foundations.

But the suggestion is here ventured, that by the exercise of proper, judicious co-operation, far greater and better results could be obtained than hitherto. Were our colleges to present a united and unyielding front, quackery would flee away and hide, if it existed at all, in the dark places of the earth.

The unjustifiable and pernicious emulation and even strife, that has so often been employed to secure students, should be abandoned, and an emulation, as to who should accomplish the most thorough work in the education of students, substituted.

Such a course should at once elevate the dignity and efficiency of our educational system. It would give a greater degree of strength, and command more profound respect. Then, instead of being in a begging attitude to the rank and file of the average students, many of whom are mercenary and unprofessional in their aspirations and intuitions, the colleges could establish rules and regulations to serve the best interests of all concerned, and carry out their work accordingly. Such a course would place a broad and heavy heel upon quackery, in the city, in the town, and in the country.

Within the past few years, legal enactments have been brought into existence, and put into operation, for the suppression and prevention of empiricism, and for stimulating to a higher degree of professional attainments. This is the most recent of the four agencies mentioned in the former part of this paper, and so has not the advantage of so long a test of its efficiency as the others, still it has so well proven its capability that a large number of the States of the Union have enacted laws, "Regulating the practice of dentistry."

These have for the most part proved eminently satisfactory, especially

those of more recent enactment; the defects of those first adopted were corrected in those of recent introduction.

The chief causes of decay and failure of teeth are: Want of cleanliness; tooth structure coming in contact with tooth structure; the margins of two proximate cavities coming together; breaking of frail walls of cavities; sharp corners which become roughened by pluggers in operating; the improper shaping of proximate cavities; chipping off of the enamel at the necks of the teeth; the use of cohesive gold, particularly at the margins of cavities, and the improper finishing of the gold at the cervical margins. Practitioners are familiar with these causes, and have entertained various ways of obviating them. Since the introduction of the dental engine the bur has proved of great assistance in rounding and smoothing the margins, but even this fails us when the cavity extends to and under the gum. When the decay in a proximate cavity reaches nearly or quite to the neck of the tooth, there is a projection of tooth structure at that point, composed of the remnant of enamel and dentine. The enamel tapering to a very thin ledge, is thus in danger of being chipped off while packing the gold. This place is also liable to become the point of contact with the adjoining tooth, and the food thereby crowded into this space between the point of contact and the gum, causing decay. In shaping the tooth this substance should be cut away, making a straight line from the root to the point of contact, after which we prepare the cavity and apply the rubber dam. By removing the moisture and applying an antiseptic we are enabled to examine the cavity and be satisfied that only the dark colored dentine protecting the pulp remains. By rounding the margins of the cavity with proper instruments, the surface of the tooth having been previously polished with fine emery strips, we are able to carry the gold over the edge of the cavity, which must be packed closely to the enamel and extend to the natural contour of the tooth. The filling should be trimmed and polished with emery strips until it assumes a well defined outline. In starting the filling, cohesive gold should be employed, allowing it to project into the cavity, which should be lined with soft or non-cohesive foil, extending over the margin of the cavity, the contour to be restored with cohesive gold. If the cavity be a simple one upon the proximate surface, soft or non-cohesive gold alone should be used.—*Dr. E. S. Talbot, Chicago.*

Cleaning the teeth is one of the most disagreeable duties of our practice, but not the least important. We should not consider our work with a patient finished till the tartar is entirely removed, the teeth polished and appropriate directions given for their future attention.

Editorial.

ANÆSTHESIA.

The blessing of anæsthesia as a relief to pain in surgical operations is almost beyond estimate. Some idea may be had by the following considerations:

1st. It removes much of the dread of necessary surgical operations. We instinctively shrink from pain. It is a natural desire to avoid it whenever its endurance is not a necessity. Especially in a surgical operation the dread of pain, with the majority of us, is intense, and we are willing to go far and pay well to have it painless. Even most of those who assume stoical indifference to physical suffering (in others) and call those cowards who cannot heroically endure it, are not always the last to ask for an anæsthetic when *they* are to be the subject. If I *must* have a tooth extracted or a finger cut off—and which is the more dreaded or the more painful?—I call that man a benefactor who can do this for me while I am in the sweet realms of dreams.

2d. It is almost impossible for us to give ourselves up voluntarily to severely painful operations without a struggle. There will be flinchings, and writhings, and resistance, which most seriously interfere with a skilful operation. We think we will, and make every preparation to exert our will to accomplish it, but when the decisive moment comes every nerve rebels, and neither persuasion nor threats will induce quiet. We have been a dentist for more than a quarter of a century, and we never could have it in our heart to blame a patient for not quietly submitting to the dreadful horror of having a tooth extracted.

3d. If the will is strong enough, the nerves may not be. The very strain, or tension necessary is not infrequently followed by a prostration that is serious in the extreme.

"It is nonsense," we said to a young man once, "to persist in having gas for the extraction of a single tooth."

"I have had one out," said he, "without taking anything, and I will never suffer such a torture again, if I can avoid it."

But by over-persuasion we induced him to submit, and, as he took the chair, I reached for my forceps that I might surprise him by the brevity of the operation. I had not reached his mouth before I found the lower jaw had involuntarily fallen—he was in a complete state of asphyxia. It was three hours before he was able to leave the office, and many days before he entirely recovered. We then extracted his tooth under the influence of gas, with happiness depicted on every lineament of his countenance during the operation. Had he taken gas in the first instance, and the same untoward results had followed as were then present, all the evil would have been charged to the gas.

Not long since a gentleman brought us his wife, saying:

"Doctor, I would like to have you extract a few teeth for my wife, but please don't give her any anæsthetic. I am obliged to leave on the next train, but I presume she will get along all right."

She was a delicate, timid, weak woman, with a nervous, sanguine temperament, and a strong will. There were seven teeth to be extracted. Clinching the arms of the chair with great resolution, she braced herself for the operation. We extracted three, and then told her she should suffer no more. In an imperious, firm, commanding tone she replied, "Take out every one of them." We extracted another, and then informed her if we extracted any more it would be against our judgment. "If it kills me I'll have them out," said she, and out they came.

Complete prostration followed. We sent for a carriage and assisted her to the nearest hotel, where she remained three days before she could be taken home. What an example of the effect of anæsthetics that would have been if an anæsthetic had been given.

4th. Anæsthesia is a great blessing to the operator. He is less interrupted by the patient, is able more fully to concentrate his mind on his work, and acts more completely from unbiased judgment. It needs nice discrimination and special skill to perform many operations. It will not do to have the passions aroused by the unreasonable conduct of the patient, nor the nerves unstrung by excessive sympathy. An operation under anæsthesia is much more speedy, certain, and dexterous on this account.

5th. Not only is the patient relieved of pain and the operator from embarrassment, but many serious mishaps are avoided. The struggles of the patient and the uncertain motions caused by interference often cause imperfect operations, and sometimes positive malpractice.

6th. Surgical operations under anæsthesia are safer. We verily believe that in operations even under chloroform, there are less deaths in proportion in capital cases than where chloroform is not used. If this can be said of chloroform, how much more boldly we can say it of ether, and still more so of gas. In fact, with gas there is scarcely a fatal case on record. Almost uniformly death, when an anæsthetic is used, is charged to the anæsthetic, but when it is not used death is "providential." As a surgeon said recently, as his patient died under his knife, "I am glad I did not give this man an anæsthetic." "Why glad?" asked the listener. "Because," was the reply, "no matter what the cause of death is, if an anæsthetic is given *that* is always made responsible for the death." Even in our dental chairs we have deaths from heart disease, apoplexy, fright and other causes, where no anæsthetic was given.

No doubt, in all minor operations, gas is the safest and best, and

that the liquid gas is the purest, but from what we have said we hope it will not be inferred that no qualifications are needed by the operator to administer even gas intelligently.

SOME THINGS OF INTEREST IN PHYSIOLOGY.

In the little series here proposed we make no pretence to compliments in physiological description, nor to originality. We aim to give some facts which may be interesting and instructive to those who have not the time or the inclination to study anything more elaborate. We hope to give such a relish for more that our readers will be obliged to satisfy themselves from other sources.

INHERENT WARMTH AND VOLUNTARY MOTION

Are, perhaps, the first phenomena observable as distinguishing animate from inanimate things.

In everything, motion produces warmth; but in inanimate bodies this warmth is not an inherent condition, nor is this motion a volition. In animals warmth glows and motion is free, though everything about them is cold and motionless. How this is so is not easily explained. Life and its activities are a mystery, and the character of the organization by which these are exhibited is too wonderful for our comprehension. Much is, however, known, and we will record, in a plain way, some of its more interesting features:

WE ARE A FURNACE OF FIRE.

The fuel we consume is not disposed of just as that put in the steam engine, yet it is not so different as might be imagined. In both cases it is oxygen that produces combustion, by which the fuel is transformed to heat and motion. We have the resultant coal and ashes, with the carbonic acid gas as smoke. But there is this difference: whereas, in the engine, the fuel makes heat which is only transformed to motion, much of the fuel given to the body goes to make up internal growth. But even here the difference is not all it seems; for a man takes, say five pounds of food daily, and yet generally remains at about the same weight, instead of adding these five pounds daily to his avoirdupois. If he weighs himself just before a meal and then just afterward, he will find an additional weight, but by the time he becomes hungry this added weight will have all disappeared. Under certain circumstances he may for some time increase in weight, but under other circumstances he will find himself growing lighter, though he continues to eat.

Did you ever notice that if you shut the draft off your engine the fire will not burn? So it is with us. Unless we can have a free supply of oxygen from pure air we shall become cold and enfeebled, and soon die.

PHYSIOLOGY

In its restricted sense, treats of the use and activities of living things,

while anatomy tells of their formation. In general treaties, however, the former includes the latter.

One would suppose the anatomy of the body would give a pretty good idea of the purposes and functions of its different parts; but it does not. A bone, studied without a knowledge of its physiological use, would be an enigma; and a muscle or a nerve, examined only with reference to its composition, would afford but a faint idea of its use.

ORGANIZATION.

Our whole body is called a system; this is made up of many organs. An organ is any part which has a specific use, as the heart, a muscle, a tooth, or a finger. An organized structure is distinguished from an unorganized substance by its being produced by the internal workings of its own activities. The great difference between cold anatomy and warm, pulsating physiology, is

LIFE.

No man has yet determined what life is; we can only see its effects. Life is not the result of organization, but organization of life. We may place non-living matter under circumstances ever so favorable for the production of life, and life will not come. It must have the germ of life inherent. Heat, light, electricity and chemism may produce changes dependent on their modifying influences and the juxtaposition of their particles, but they cannot bring forth life.

Living bodies increase in size by an internal

GROWTH,

While minerals accumulate particles by accretion—an increase from without. The former have a limited existence of growth, maturity, and decline; minerals may remain unchanged indefinitely. All organized things are the product of parentage; the unorganized, of mere chemical affinities.

Both organic and inorganic things are composed of what are called

ELEMENTS.

These are substances which seem to be simple, not compound; and which, therefore, we cannot resolve or divide into more ultimate forms. A piece of chalk is not an element, because it can be divided into a rarified compound substance called carbolic acid gas, and a solid compound called lime. Gold is called an element, because it cannot be divided into a simpler form. Some substances, which in the past have been reckoned among the elements, are now found to be compounds. In the future, therefore, the present list of what are considered elements may have to be modified.

PHYSIOLOGICAL ELEMENTS AND RUDIMENTARY STRUCTURES.

There are computed to be over sixty elements in nature, but not a fourth of these compose the human body. Physical elements are derived from unorganized matter. Most of those in our bodies are first modified from inorganic substances by becoming components of vegetable organizations.

The ultimate substance of animal matter is a mere speck, without definiteness of shape or structure, yet having within it the elements of life, growth and propagation. The simplest form of this protoplastic life is called a cell. They vary much in form and size, though at best they are very minute. Some, such as the adipose or the starch cells, are small bags filled with fat, or starch, which are reservoirs of supply; others are disks, which flake or break up continually, and thus produce growth of the different component parts of the body by propagating their species. Others seem to be but specks of jelly. Out of these various forms all the tissues of the body—the membranes, muscles, bones and organs in general—are formed. Different classes of cells, then, differ in character as well as in size and shape. They are composed of different elements, as they are designed for various compound organizations. Though the body, therefore, is made of but few elements—mainly carbon, hydrogen, oxygen and nitrogen, with iron, potassium, sodium, phosphorus and calcium—these do not enter into all parts of our organization alike. A divine wisdom guides their combinations to give great diversity of structure.

THE ORGANIC COMPOUNDS

Are principally albumen, a substance like the white of an egg; gelatin, or jelly-like compounds, as cartilage; oil and fat of the adipose tissue, and starch, with its sugary compounds, which are continually being converted into tissues. The first two contain nitrogen, hydrogen, oxygen and carbon. Fat and starch are rich in carbon, but lack nitrogen. Water—hydrogen two parts, oxygen one part (H_2 O)—constitutes two-thirds of the weight of the body, and is designed principally as a solvent for the substances which enter into its constituents and growth. The fat and the starch may be called reserved forces, as neither of these of themselves constitutes food. It is only as the fat is seized by the carbon to make fuel, and the starch is aroused into life by oxygen to produce sugar, that either become active elements of growth.

Letters heretofore requiring three cents postage, after October first will be sent for two cents. The rate is two cents for one-half ounce or less, and two cents for each additional half ounce. This is called first class mail matter. Postage on newspapers, merchandise, etc., is unchanged.

Miscellaneous.

WONDERFUL FEATURES OF THE LUNGS' ACTION.

BY J. R. LARZELERE, M.D.

It is not my purpose in this paper to present to my reader the whole subject of respiration; or tax your attention with an account of all the physical agents which are ministerial to the accomplishment of this highly important function. All of you, doubtless, are acquainted with the anatomical construction of the lungs; in brief, their structures (emanating from without inwards) consist of an external serous, subserous areolar tissue, parenchyma, air cells, lobules, connective tissue, nerves, ganglia, lymphatics, blood vessels, bronchial tubes and glands, mucous membrane, epithelia, and ciliary or hair-like bodies, etc.

Of these structures, to which I desire most to direct your attention, are those of the epithelia and ciliary bodies, the cells of which are conical and squamous in form: the latter are mainly found in the alveoli; these forms of cells extend throughout the respiratory tree. Coupled with these living cells are constantly present the nuclei, also, other characteristic peculiarities; of which the most important are the existence in some of them of ciliated prolongations, which latter have a continued vibratory movement; the rapidity of motion at times is estimated at two hundred or more per second, and thus it is perpetuated all through life.

It is a most interesting and remarkable life phenomenon, that these delicate structures should ever remain in constant motion both during physiological and pathological conditions.

Epithelial cells having vibratile cilia, belong only to the higher order of animal organisms; they have never been observed to exist in the articulata (insects). These hair-like bodies are ever tending their motion in a uniform direction, that is, from the minute bronchial tubes onward through the larger bronchi to the mouth. The special function of the epithelial cilia would seem to consist in keeping the channels for the ingress and egress of air free from all matters which would become objects of bronchial obstruction. It is to the motion of these hair-like bodies that dead epithelial scales, in the form of mucus, are removed from the alveoli and bronchi. The recovery of many of our pneumonic and phthisical patients is largely attributable to the action of these little bodies. So far as known, the nervous system has nothing to do with keeping up their incessant vibratory motions.

The life phenomena of the cilia are so intimately connected with the

cells that if they should be detached they immediately cease to move; thus demonstrating the paternity of the cell, especially of the protoplasmic element within.

The absence of oxygen appears to paralyze them, and induce asphyxia. Acids retard, while alkalies accelerate their motion; also, a low temperature abates, whilst a high one increases their activity.

It is seemingly evident that the initial respiratory change takes place at the epithelium of the minute bronchi, as well as that of the alveoli or pits. The epithelium of the bronchial mucous membrane readily allows the production of hematosis (or gaseous exchanges). That this is true, you need but be reminded of the anatomical fact that the bronchial arteries have no corresponding veins, and it is through their blood that the bronchi receives nourishment, is oxidized by contact with this air, and flows immediately into the pulmonary veins, along with the arterial blood, and is carried back the left heart.

Nutrition and oxidation take place in the lung from the contact of air with the blood furnished by the bronchial arteries. The most marked function of epithelia at their free surfaces, is to preside over the interchanges of nutrition; and especially is this true of the pulmonary epithelium, which is obviously ministerial to the so-called absorption of the fluid and gaseous materials. The pulmonary epithelium verily may be regarded the primordial structure, which aids in the first step of the complex function of respiration.

Recall to your minds but for a moment some pathological conditions which will aid you in perceiving the great importance of the epithelium, not only of the lungs but including all the general organs of which their structure is partially composed, viz., so called pseudo membranous inflammation of the respiratory tract, consists principally of hypertrophy of the tracheal and bronchial epithelium; also, in the deep seated epithelium of the pulmonary vesicles, the condition denominated pneumonia is, mainly, a change of the epithelium of the vesicles; and it is to filling of the latter with dead fragments of the epithelium, which excludes the air from the alveoli, developing that condition in pathology known as hepatization. Furthermore, so called tubercle is first hypertrophy, and subsequently mummified deposits incubated from dessicated vesicular epithelium.

It is only of comparatively recent date that physiologists have deigned to attach much importance to the epidermis, having regarded it as a kind of secretory product of the dermis, yet, in verity, it is this structure which is most often affected in diseases of the skin. The maximum number of affections called dermatoses are only epidermatoses, a pathological state of the cutaneous epithelium. In like manner may we look upon acute and chronic effusions of serous structures when not produced by mechanical causes, as generally referable to a partial or total loss of function of their epitheliums.

Hence we may conclude with certainty that the normal functions of the epithelial globule are to choose proper materials, draw unto themselves certain elements from the surrounding mediums; and to reject some and give egress to other elements.

In the lungs it is the function of the epithelial globule to imbibe, take hold upon, seize on the oxygen of the air, and retain it (so to speak) in readiness for the reduced oxyhæmoglobin which is coursing the pulmonary arteries to reach the capillaries; at which point the retained oxygen is taken up by the red globules.

To make use of a simile, the pulmonary epithelium may he likened to a faithful sentinel, who with increasing vigilance guards the post of duty, the better to prevent the ingress or egress of factors, whose presence would prove detrimental to the cause over which he has control.

Normal respirable air is composed of definite parts of oxygen and definite parts of nitrogen, with a mere shadow of carbonic acid. It is the first named gas which is so essential to the metabolisms of the living economy; the inspired nitrogen, so far as known, undergoes no marked mutation, and is expired in about the same quantity as it entered the lungs. It seems to act principally as a diluter of the oxygen.

That the large percentage of nitrogen which enters into the composition of the air, and yet, when taken into the economy, should there perform no important function, to us is most truly remarkable. On the other hand, may we not, with some plausible show of presumption, regard it as one of those occult forces, which, when taken into the organism, is utilized as a balance wheel to other forces of the body?

As before intimated, the blood as it courses through the pulmonary capillaries undergoes important changes; the extra-vascular structure which first aids in this modification is the pulmonary epithelia, the normal function of which is to hold in store the gases imbibed or absorbed by the reduced hæmoglobin, whence the vascular current is known as arterial blood on its way through the pulmonary veins to the left side of the heart, hence throughout the arterial system to all the tissues of the body. The differential character of arterial and venous blood consists in the relative proportion of the oxygen and carbonic acid gases contained in each. Some of the older teachers affirm that the function of the red globule was to dissolve as well as to transport the oxygen.

It is now generally taught that the globules are simply carriers of oxygen, in which state they are known as oxyhæmoglobinized, and it is this combination which imparts to them their bright scarlet color. Of the whole quantity of oxygen in the blood only a small part is absorbed, in obedience to the law of pressure (the so called Henry Dalton law). The large percentage is in a state of combination with the hæmoglobin, which readily combines with the oxygen of the air to

which it is exposed; so, also, does dissociation readily occur at low pressures, or in the presence of indifferent gases, or by the action of substances having a greater affinity for oxygen than hæmoglobin. These mutations occur in those structures of the body where combustion takes place; the extra-vascular elements having a super-affinity for oxygen, over and above that of the hæmoglobin. And just here, at the expansive capillary area, is where the red globule gives up its claim to the oxygen, and it is passed over to the immediate extra-vascular tissues or structures, and what further changes occur at this point is now what is most perplexing the brain of the physiologist to explain.

It is generally conceded that at or about this topography of the body assimilation and disassimilation occur, and he who possesses the wisdom to first explain this hitherto inexplicable function, will obtain a posthumous reputation not excelled by any of the great lights of the past.

As the result of the presence of oxygen at the expansive vascular area of the body, there is induced the genesis of carbonic acid; the same interchange of gases occurs here as at the lungs, save only that the order of exchange is inversed, the globule parting with its oxygen, while the carbonic acid seeks egress in the liquor of the blood, and from thence is conveyed to the lungs for expulsion. However obscure may be these phenomena to our mind, they are nought but tissue respiration; the tissues do breathe, the only difference being the inversed order of the gaseous exchanges and the location of the tissues. In the lungs, the oxygen can only be utilized when combined intra-vascular; at the great vascular area, the extra-vascular tissues take charge of and associate with the oxygen, after the wisdom of "Him who guides the wandering star through trackless realms of ether's space."

MEETINGS OF DENTAL SOCIETIES.

Of Maryland, D. C., at Washington, D. C., second Tuesday in October. Dr. B. F. Cory, of Baltimore, President. Dr. M. W. Foster, Secretary.

Of Ohio, at Columbus, first Wednesday in October. Dr. J. Whyderskrons President. Dr. J. H. Warner, Columbus, Secretary.

Of Massachusetts, at Boston, second Thursday in December. Dr. F. Searl, Springfield, President. Dr. W. E. Page, Boston, Secretary.

Of Mississippi, at Jackson, third Tuesday in January. Dr. J. D. Miles, Vicksburg, President. Dr. G. W. Rembert, Natchez, Secretary.

Of Tennessee, at Nashville, third Tuesday in February. Dr. J. H. Prewett, Madisonville, Ky., President. Dr. H. W. Morgan, Nashville, Secretary.

OBITUARY.

PROFESSOR THOMAS L. BUCKINGHAM.

Died—At his residence, No. 1228 Arch St., Philadelphia, Tuesday, September 4, 1883, Prof. Thomas L. Buckingham, in the 68th year of his age.

The above announcement will be read with surprise, sorrow, and regret. To most of Prof. Buckingham's professional friends, it will be unexpected and sudden, as indeed it was to his family and intimate associates.

For perhaps a year or more his health has been failing, but not so seriously as to excite alarm until about July, when symptoms developed that indicated approaching danger, but they were of so mild a character that hopes were entertained that his life might be prolonged for some time. Toward the end of the month he so far improved that he was able to attend the meeting of the American Dental Association, at Niagara Falls, which convened August 7, 1883.

At the meeting he took an active part in the business and the discussions, speaking frequently, and in all his remarks showed the same quickness of apprehension, and sound practical discriminating judgment for which he was well known. After the meeting had adjourned, he expressed himself to the writer as having enjoyed himself very much and feeling a great deal better in health than he had for some weeks. Shortly after his return home he began to fail rapidly, and died Sept. 4, of softening of the brain.

The time that has elapsed since his decease has been too short to attempt to do more than briefly outline a few of the more prominent events of his professional life. A memorial meeting, projected by the Pennsylvania Association of Dental Surgeons, of Philadelphia, shortly to be held, will probably bring to the notice of the profession the value of his services, and the esteem with which he was held by those who knew him best.

Prof. Buckingham's early life was spent in mechanical and mercantile pursuits until about his twenty-seventh year. His early educational advantages were limited. Shortly after he commenced the practice of dentistry he removed to Philadelphia,—in 1845. He graduated in medicine in 1851, and at once associated himself with those who were working earnestly to make dentistry worthy of a place among the other professions. He deserves credit for having, in a few years, by hard work and close application, earned for himself a place with those who were recognized as leaders in the movement then beginning, which has since made the profession of dentistry what it now is.

On the 9th of February, 1850, he was recommended for membership to the Pennsylvania Association of Dental Surgeons, of Philadelphia, and at the same meeting a committee was appointed to take into con-

sideration the propriety of establishing a Dental College in Philadelphia. At the next meeting, April 2, the committee reported in favor of establishing a college, and at the same meeting Prof. Buckingham was elected a member of the association, and at once took an active part in its proceedings, and continued to do so, seldom ever being absent from its meetings until his death.

In the *Dental News Letter* for October, 1850, he began a series of articles on "Mechanical Dentistry," written, the publishers state, at their request, in consequence of the demand by dental students and others for a plain, concise and practical essay on that subject. This is the first article I can find from his pen. The series form a good exposition of the art, as it was then practiced. It was the beginning of the Doctor's good work, that only ended with his life. It is impossible to enumerate the work of so active a mind in an article like this, and hard now to fully estimate the value of his services. The profession has advanced so far, and so rapidly, that we hardly realize how much interest the "warping of plates" and kindred subjects once excited. His researches on the expansion of plaster, the physiological action of arsenic, and the results of experiments he exhibited at the meeting of the American Dental Association at Cincinnati, in 1882, to determine the proper heat at which to pack celluloid, are but types of the generous use he made of time, money and mind, to advance the general good. He was naturally well qualified as a reliable investigator; he began by laying aside more completely than any one I have ever met with, all preconceived notions. He began experiments expecting nothing—ready to see, and quick to appreciate what they had to show; always conservative, patient and persevering, and only accepting as conclusive those things he was able to prove. Most of his apparatus he constructed himself, and displayed in doing so an ingenuity and mechanical skill that few possess.

The project of establishing a Dental College in Philadelphia, which had been agitated for some time, took definite shape at a meeting of the Pennsylvania Association of Dental Surgeons, held April 2, 1850, when a committee was instructed to procure a charter and take such action as might be necessary to organize a Dental College. After much vexatious delay and discouragement, a charter was obtained, and the college organized October 17, 1851, under the name of "The Philadelphia College of Dental Surgery," and a Faculty elected—Dr. Buckingham being assigned to the chair of Mechanical Dentistry. The first session began the first Monday in November, 1852, and with it Dr. Buckingham began his career as a teacher of dentistry, delivering a course of lectures in it, and its immediate successor, "The Pennsylvania College of Dental Surgery," every session for thirty-one consecutive years. When he died, he was the oldest continuous teacher of dentistry in the United States, and, perhaps, in the world. Of the original Faculty, Dr. John DeHaven White alone survives.

In conclusion, Prof. Buckingham was a Christian—unostentatious, and sincere; and, in every sense of the word, a gentleman.

W. H. T.